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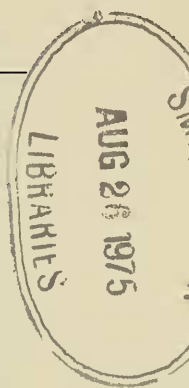
CHIRIDOTEA STENOPS MENZIES AND
FRANKENBERG, A JUVENILE OF *C. ARENICOLA*
WIGLEY (CRUSTACEA: ISOPODA)

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To date, six species of the western Atlantic isopod genus *Chiridotea* Harger have been described (Bowman, 1955; Wigley, 1960, 1961; Menzies and Frankenberg, 1966). Of these, two (*C. almyra* Bowman and *C. nigrescens* Wigley) occur in brackish water while the remaining species [*C. coeca* (Say), *C. tuftsi* (Stimpson), *C. arenicola* Wigley, and *C. stenops* Menzies and Frankenberg] occur in marine waters. Until the description of *C. stenops* by Menzies and Frankenberg (1966), a common feature of the genus was the presence of deep clefts in the lateral cephalic margins. Menzies and Frankenberg (1966) commented that *C. stenops* was unique in possessing lateral cephalic margins that were not incised and thus it did not appear to be very closely related to any other species in the genus. It is the purpose of this paper to show that the lack of incised lateral cephalic margins is characteristic of immature *Chiridotea* and that *C. stenops* is a juvenile of *C. arenicola*.

MATERIAL EXAMINED

Specimens examined were obtained from the following sources: a) the paratypes of *C. stenops* (USNM 111072) and *C. arenicola* (USNM 104281) were obtained from the U.S. National Museum; b) several individuals were obtained from a series of samples taken on the Delaware-Maryland continental shelf by the Environmental Protection Agency; c) a



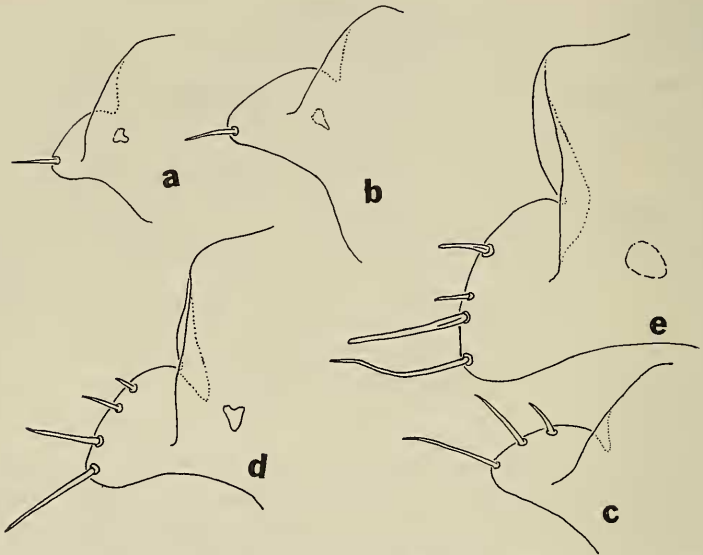


FIG. 1. Lateral cephalic margin of several *Chiridotea* specimens. a, *C. stenops* paratype, 2.5-mm body length; b, *C. stenops* paratype, 3.0 mm; c, specimen from continental shelf off Delaware, 4.0 mm; d, *C. arenicola* paratype, male, 5.0 mm; e, *C. arenicola* paratype, female, 6.5 mm. a, b, d, e, drawn to scale different from c.

series of specimens of *C. tuftsi* from Massachusetts Bay were obtained from the U.S. National Museum.

RESULTS AND DISCUSSION

Menzies and Frankenberg (1966) listed the following features as being diagnostic of *C. stenops*: (1) lateral margin of cephalon not deeply incised; (2) preocular region of cephalon narrow as compared to the produced postocular region; (3) apex of pleotelson with only three to five lateral setae; and (4) eyes reduced, almost obscure. To establish which characters varied with increasing size, the paratypes of *C. stenops* and *C. arenicola* and locally obtained specimens from the Delaware-Maryland shelf were examined for the following characteristics: size of the cleft in the lateral cephalic margin; number of spines on antenna 2 peduncle segment 4; num-

TABLE 1. Change in value of selected features with increasing body length.

| Source of Specimen | Length (mm) | No. spines antenna 2, peduncle segment 4 | No. flagellar segments, antenna 2 | No. spines, lateral margin telson apex |
|--|-------------|--|-----------------------------------|--|
| 1. <i>C. stenops</i> paratype | 2.5 | 3 | 2 | 3 |
| 2. <i>C. stenops</i> paratype | 3.0 | 3 | 2(3) ^a | 2-3 |
| 3. Off Bethany Beach, De. | 3.0 | 5 | 2(3) | 4 |
| 4. Mid-Atlantic shelf, 38°11.9'N, 74°32.9'W | 3.0 | 5 | 2 | 4 |
| 5. Off Bethany Beach, De. | 3.5 | 5 | 3 | 3 |
| 6. Off Bethany Beach, De. | 4.0 | 5 | 2(3) | 5 |
| 7. Mid-Atlantic shelf, 38°11.9'N, 74°32.9'W | 4.0 | 6 | 3 | 4 |
| 8. <i>C. arenicola</i> paratype ♂ | 5.0 | 8 | 3 | 5 |
| 9. Mid-Atlantic shelf, 38°23.8'N, 74°15.3'W | 5.0 | 7 | 3(4) | 4 |
| 10. Mid-Atlantic shelf, 38°11.9'N, 74°32.9'W | 5.5 | 9 | 4 | 8 |
| 11. <i>C. arenicola</i> paratype ♀ | 6.5 | 10 | 4 | 9 |
| 12. Off Delaware Bay, 38°47.5'N, 74°45.5'W | 6.5 | 11 | 4 | 7 |
| 13. Off Bethany Beach, De. | 6.5 | 9 | 4 | 8 |

^a The numbers in parentheses indicate that within the exoskeleton of one of the segments, two new segments were visible.

ber of antenna 2 flagellar segments; and number of spines on the lateral margins of the telson apex.

The changes in the lateral cephalic margins are documented in Figure 1 and the values for the other characters examined are given in Table 1. While neither of Menzies and Frankenberg's (1966) paratypes possessed a distinct cleft to divide the lateral cephalic margin into pre- and post-ocular lobes, there was a slight ventral indentation just forward of the eye. As larger specimens were examined, the cleft became more distinct and the preocular lobe more quadrate as in the *C.*

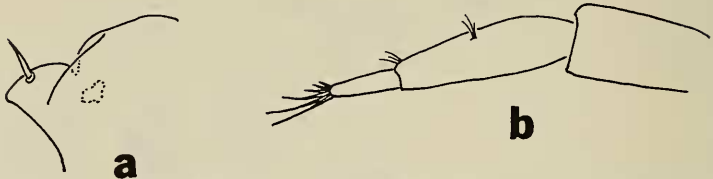


FIG. 2. *Chiridotea tuftsi*, from Massachusetts Bay, USNM 35258, 2.0 mm body length: a, lateral cephalic margin; b, second antenna, peduncle segment 5 and 2 flagellar segments.

arenicola paratypes (Fig. 1). Similarly, the number of spines on the postocular lobe increases from 1 on the Menzies and Frankenberg specimens to 4 on Wigley's specimens of *C. arenicola*. The values for the other characters listed in Table 1 also changed with increasing body length.

To substantiate that the changes in the above features were related to the age of the individuals, several specimens of the very distinct *C. tuftsi* were also examined. Individuals of this species, regardless of their size, can be recognized by the presence of several strong spines on the inner margin of the dactyl of pereopod 1. It was observed (Fig. 2) that the lateral cephalic margins of a 2.0-mm specimen (USNM 35258) showed a striking resemblance to the paratypes of Menzies and Frankenberg (1966). As larger individuals were examined, the cleft in the lateral cephalic margin became more distinct and the preocular lobe much more pronounced. Similarly, the number of spines on both the pre- and post-ocular lobes increased with increasing body length. Other features, such as the number of antenna 2 flagellar segments, also increased.

On the basis of the evidence presented, it is concluded that *Chiridotea stenops* Menzies and Frankenberg (1966) is a synonym of *Chiridotea arenicola* Wigley (1960). It is also suggested that *C. nigrescens* and *C. coeca* be re-examined to determine if there is a similar gradational change in characters between those two species.

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